

Amit Tomar

At the cusp of Arts and Computer Science..

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IT generalist with 6+ years of experience in Frontend (UI, 3D Computer Graphics), Middleware & Backend (RESTful APIs).

Work Experience

July 2015 to **Group Development Manager**, Avataar.Me.

Currently Developing fashion-tech and backend for 3D graphical assets generation pipeline of virtual garments and Avataars.

- Implemented highly scalable **RESTful APIs** hosted over **AWS** for providing various Avataar operations as **PaaS**.
- Implemented fashion content pipeline by developing desktop based applications to transform and store 3D data.
- Implemented **OpenGL/ThreeJS** based renderers for user Avataar and apparels.
- Implemented several 3D graphics tools and automated tasks for seamless 3D content generation and consumption.

Technology Lead, Avataar.Me.

- Designed and developed a graphical tool suite for apparel designing professionals to virtually create apparels.
- Worked on performance analysis and enhancement of internal cloth simulation engine.

Dec-2010 to **Systems Engineer, Innovation Lab**, Tata Consultancy Services.

July-2013 Was part of design and development teams for HMI and middleware frameworks for In-Vehicle Infotainment Systems.

- Involved in design & implementation of IPC agnostic and HMI tool agnostic **IPC & HMI Frameworks**.
- Developed **UI and controllers** for several applications including Audio/Video Player, HVAC, Web Browser etc.
- Developed System Components Manager for synchronization among several system components.
- Worked with the team in attaining **GENIVI** compliance 1.0 for TCS X-86 platform.

Technical skills

Frontend HTML, Javascript, jQuery, Bootstrap, D3.js, **Three.js**, Google-Filament, **Qt**, **QML**, **OpenGL-3.3**, Blender.

Backend **Python**, **Flask**, SQL-Alchemy, Redis, Celery, nGINX, Unicorn, Swagger, RESTful APIs, Microservices, BeautifulSoup, Springboot, MySQL, Postman.

Cloud **AWS** (EC2, ECS, S3, Route 53, RDS, Lambda, Beanstalk, Cloudfront), Docker, Boto3.

Systems **C**, **C++11**, Message Queue, D-BUS, Microcontrollers.

Opensource Project Contributions

Jan-2014 to **GCompris (A GNU package)** .

March-2014 GCompris is a high quality, educational, software suite comprising of numerous activities for children aged 2 to 10. Implemented the Qt Quick version of game 'Missing Letter' and 'Tower of Hanoi', contributing around **1000 LOC**.

<https://github.com/bdoin/GCompris-qt/graphs/contributors>

Publications & Patents

Nov-2016 **NodeTrix-Multiplex: Visual Analytics of Multiplex Small World Networks**.

Agarwal S., Tomar A., Sreevalsan-Nair J: In Complex Networks & Their Applications , Springer, Cham.

Dec-2018 **Virtual Representation creation of user for fit and style of apparel and accessories (US Provisional)**.

Education

2013–2015 **M.Tech. in IT**, *International Institute of Information Technology*, Bangalore (IIITB), **CGPA : 3.22/4**.
Thesis: Augmenting NodeTrix for effective Small World Network Visualization

2006–2010 **B.Tech (Honors) in CSE**, *Meerut Institute of Engineering and Technology*, **75.5%**.
Dissertation : Traffic analysis based automatic traffic light controller

2004 **Class 12th**, *CBSE, Army Public School*, Meerut Cantt., **78.6 %**.

Academic Projects

- July-2018 to Dec-2018 **Ray casting based direct volume rendering for medical data analysis | Three.JS.**
Implemented ray casting based direct volume renderer to visualize 3D volume data. Scalar field values were mapped to color and opacity using interactive transfer functions. Main application area of volume rendering is medical imaging where volume data is obtained from X-ray, CT scans, PET scans etc.
- Jan-2014 to Dec-2014 **Visualization for Security Analytics | Research collaboration IIITB & EMC² | D3.js.**
Investigated, identified and implemented effective and intuitive visualizations of security analytics, ensuring that the enterprise security incident response teams can not only consume the security analytics results, but also make better informed decisions with regard to its correctness and criticality.
- <https://github.com/Amit-Tomar/MinimalisticKernelDevelopment>
- Feb-2014 to July-2014 **Copy-Dog : Augmented Suffix Tree Implementation for Software Plagiarism Checking | C++ .**
Implemented augmented Suffix Tree data structure for checking the plagiarism in the codes submitted to various professors at IIITB. Given a set of programming assignments, this implementation checks for the plagiarism among all the files and generates a detailed report of the copied code along with the file names.
- <https://github.com/Amit-Tomar/Parametrized-String-Matching-Implementation-for-Software-Plagiarism-Check>
- Feb-2014 to March-2014 **Implementation of Loop Subdivision algorithm for Interactive Surface Modeling | C++ OpenGL .**
Implemented an interactive program that allows the editing and rendering of a mesh surface. The surface is refined through successive subdivision using a standard subdivision scheme. User will be able to edit the shape of the surface by dragging "control points" of the surface.
- <https://github.com/Amit-Tomar/Loop-Subdivision-For-Interactive-Surface-Modelling>
- April-2014 to May-2014 **Animating Hierarchical Object Models using Custom Scenegraph | C++ OpenGL.**
Implemented a program to simulate the motion of an articulated robot that moves blocks from one conveyor belt to another. Objects were modelled as logical hierarchical structures and a custom scenegraph was implemented in the process. Simple forward kinematics was used to animate the robot.
- <https://github.com/Amit-Tomar/Animating-Hierarchical-Object-Models-Using-Custom-Scenegraph>
- Dec-2009 to May-2010 **Traffic Analysis Based Automatic Traffic Light Controller | Embedded C .**
Implemented an automated traffic signal, which controlled the lights on the basis of traffic analysis, automatically. This system takes into consideration the amount of traffic on each side at a particular instant, unlike the existing system which has a fixed amount of time allocated for a side, based on one time initial calculations.
- <https://sites.google.com/site/tabatlcs/>

Honors & Awards

- July-2013 **99.08 %ile in GATE 2013**
- June-2013 **Technical Excellence Award**, Tata Consultancy Services
- 2012 **Employee of the month (Twice)**, Feb-2012 & Nov-2012, Embedded Innovation Lab, TCS
- 2017-18 **Most Valuable Performer of Quarter (Twice)**, Sep-2017 & Dec-2018, Avataar.Me

Others

- StackOverflow <http://www.stackoverflow.com/users/1093223/amit-tomar>
- GVC Lab <http://www.iiitb.ac.in/GVCL/people.html>
- Behance <http://www.behance.net/amitTomar>
- GitHub <http://www.github.com/Amit-Tomar>